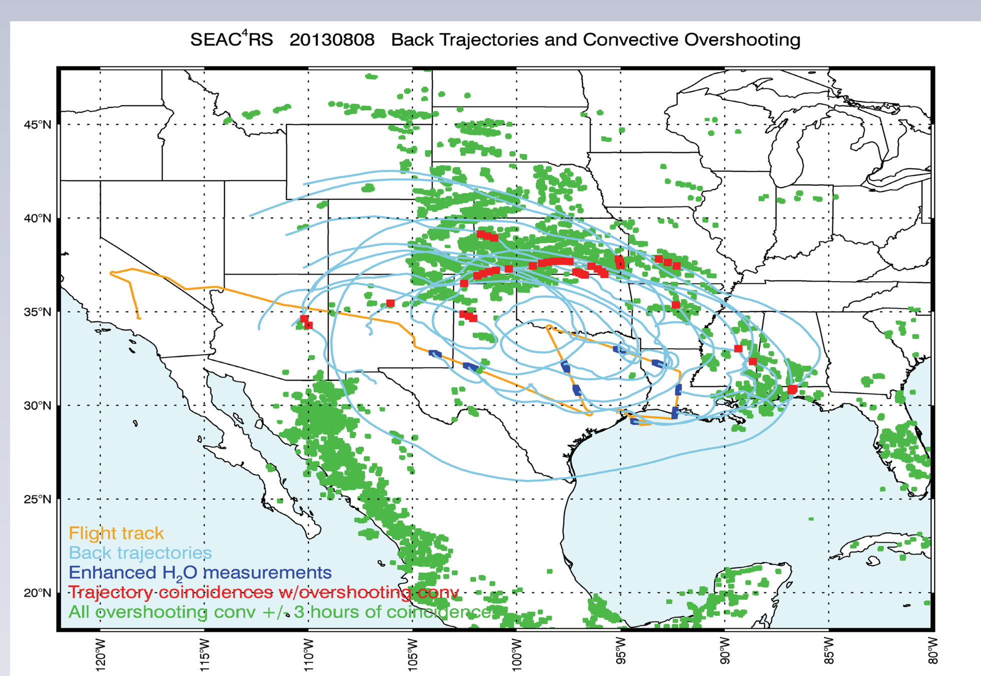
Paper Number: A23L-3412

National Aeronautics and Space Administration

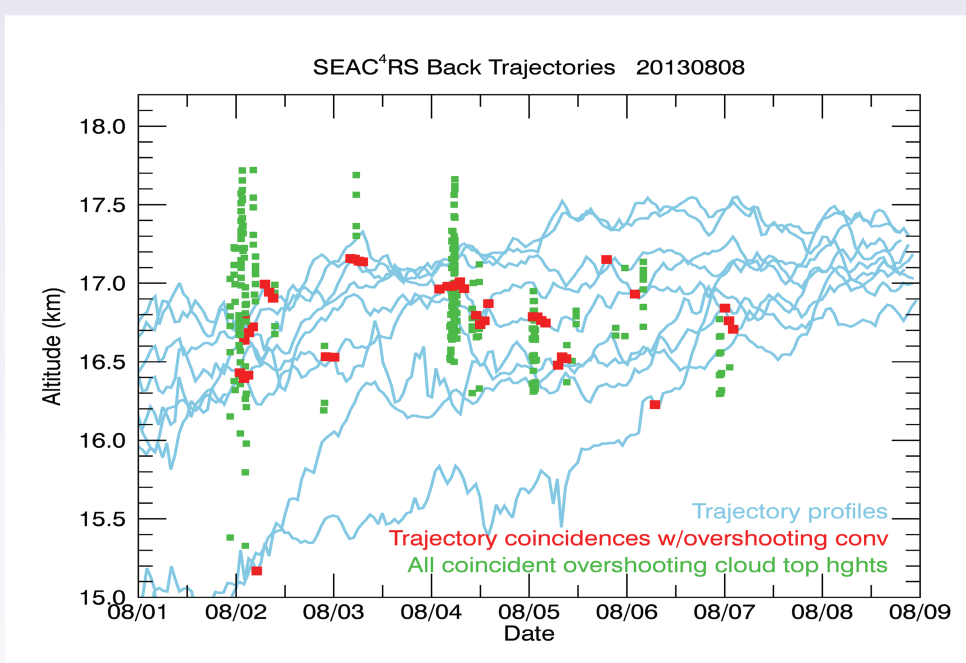
Characterization of Water Vapor in the North American Monsoon with JLH Mark2 and Aura MLS

Part 2: Trajectory Modeling

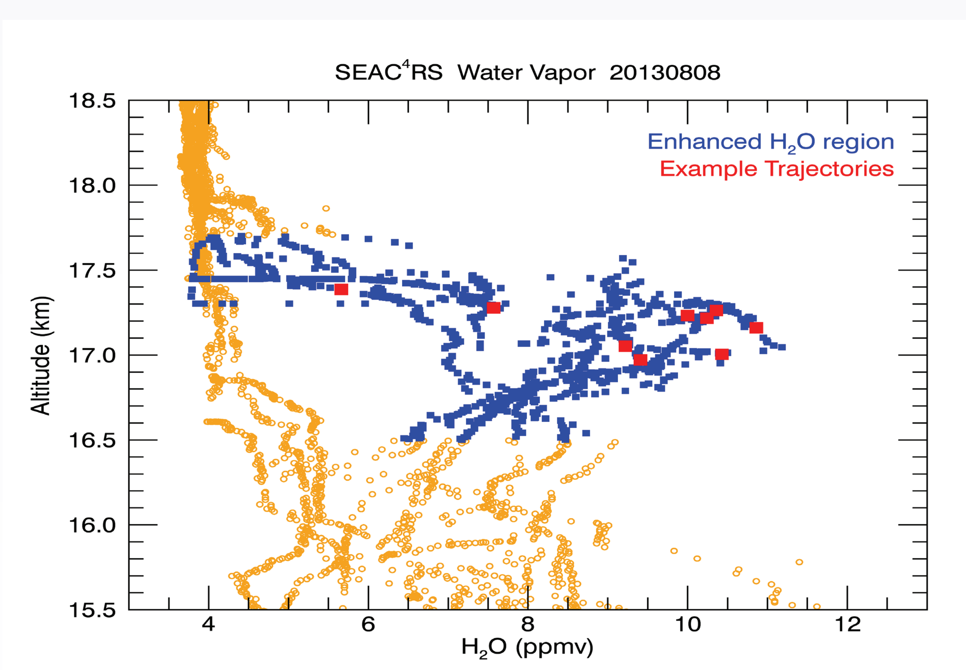
8 August 2013



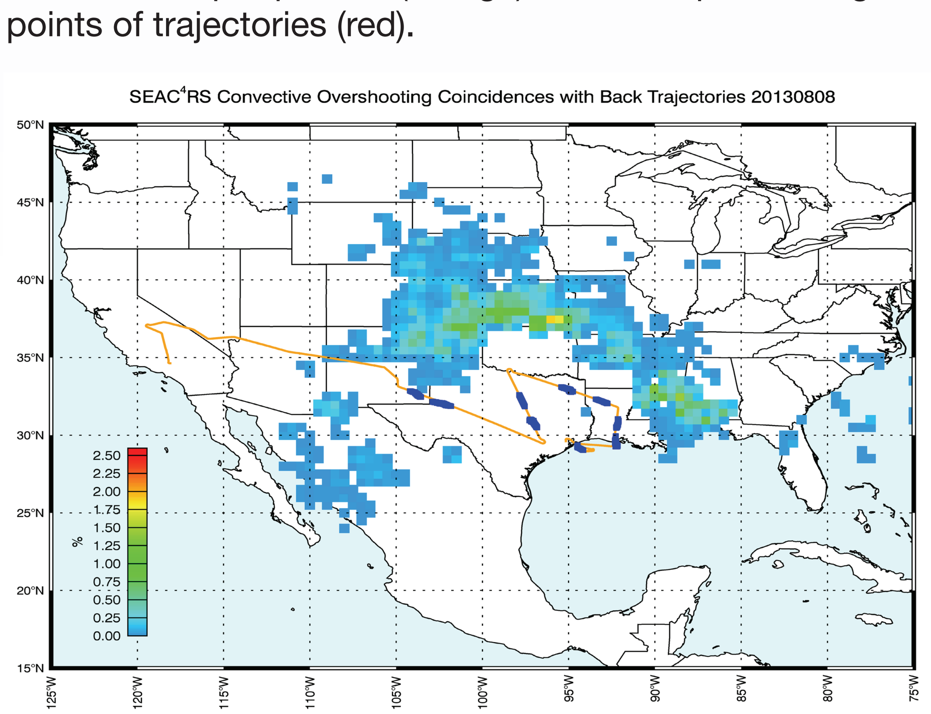
Map of 7-day back-trajectories from enhanced water regions of the aircraft flight. Overshooting convection is identified when coincident with the trajectories (red squares), and within +/- 3 hr (green).



Altitude vs Time plot of trajectories, showing overshooting convection that intersects the trajectories (red squares), and all coincident overshooting cloud top heights (green).

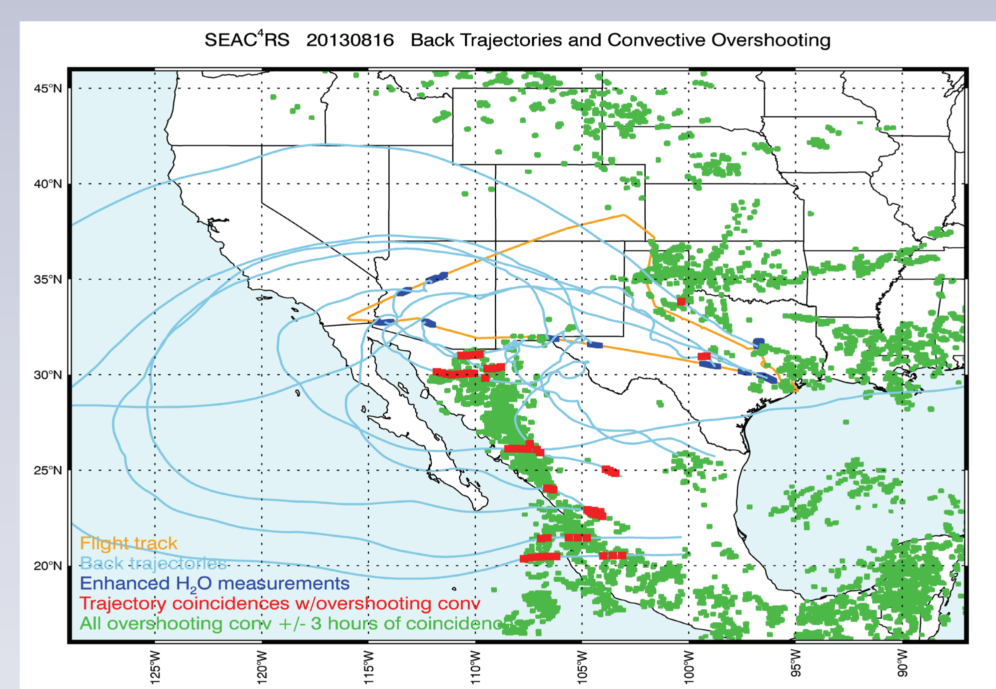


JLH water vapor profiles (orange) with example starting points of trajectories (red).



Normalized pdf of coincident overshooting cloud tops.

16 August 2013



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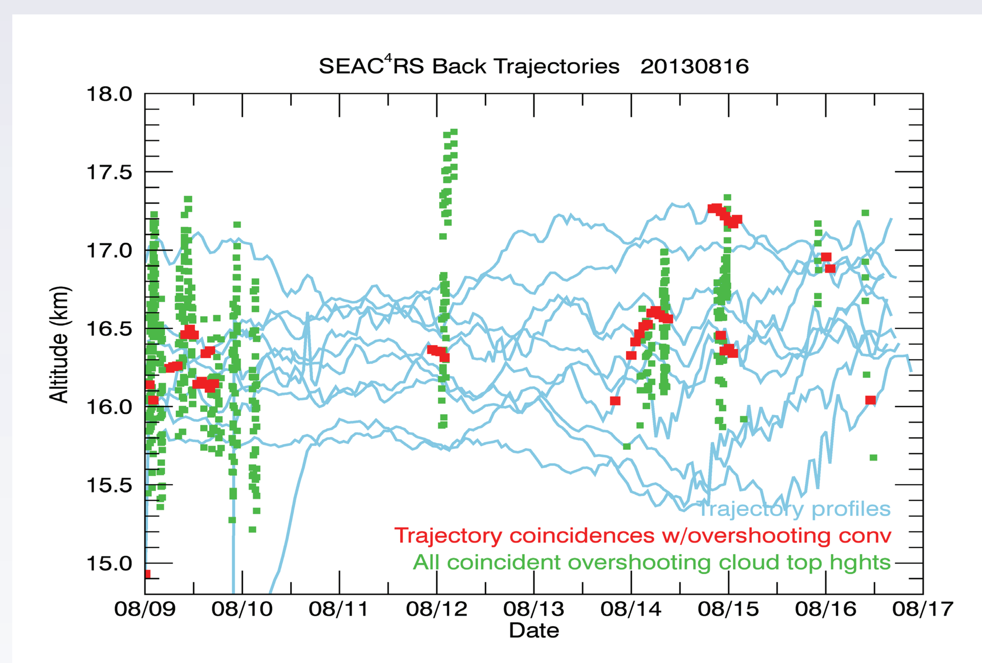

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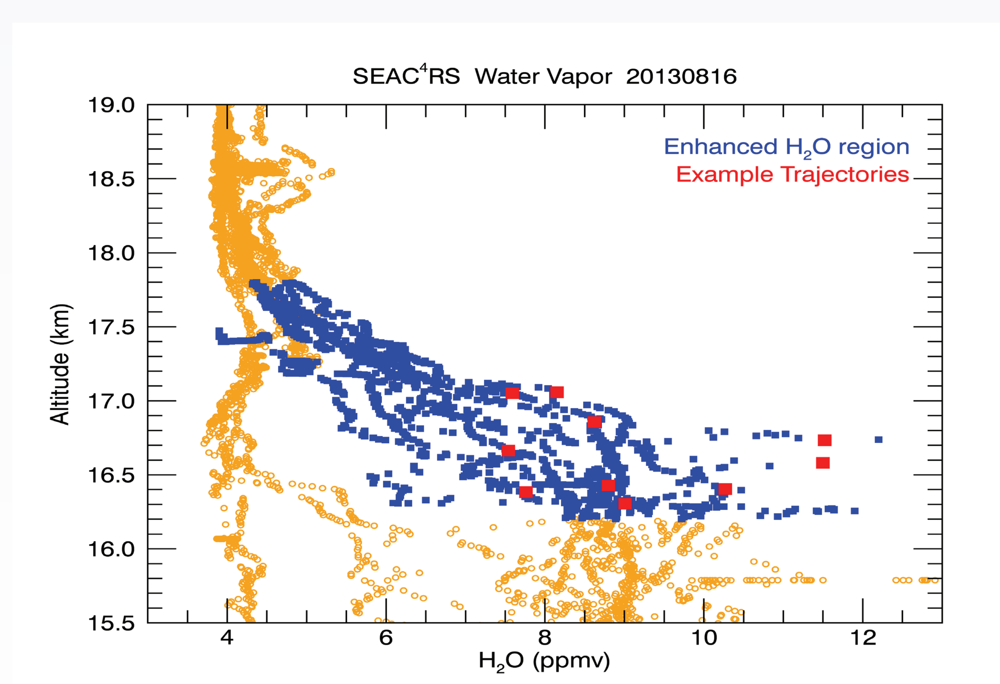

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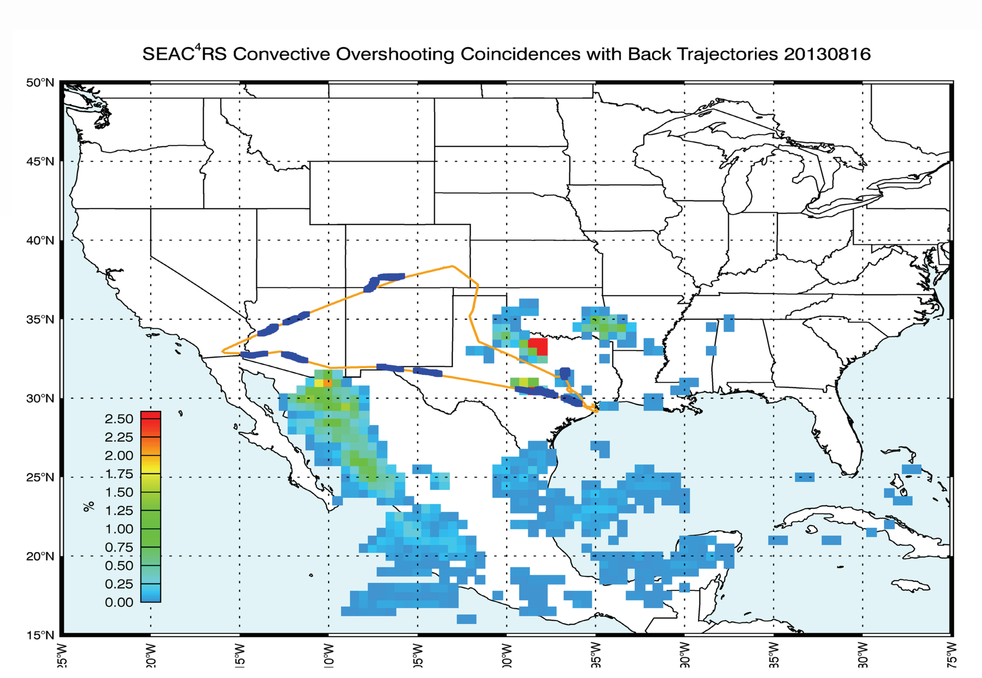

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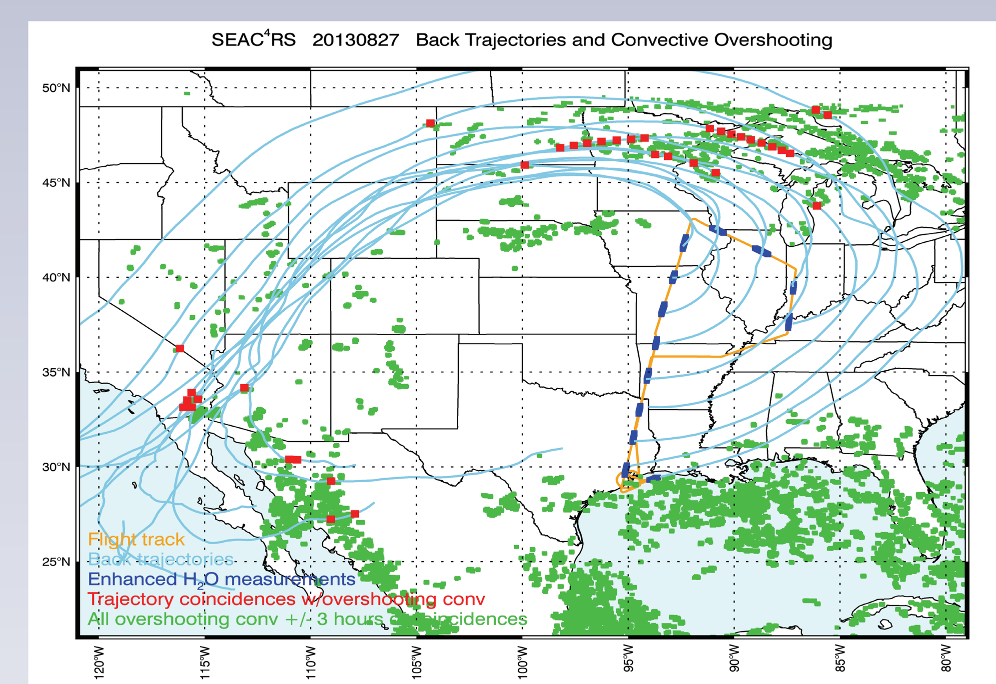
27 August 2013



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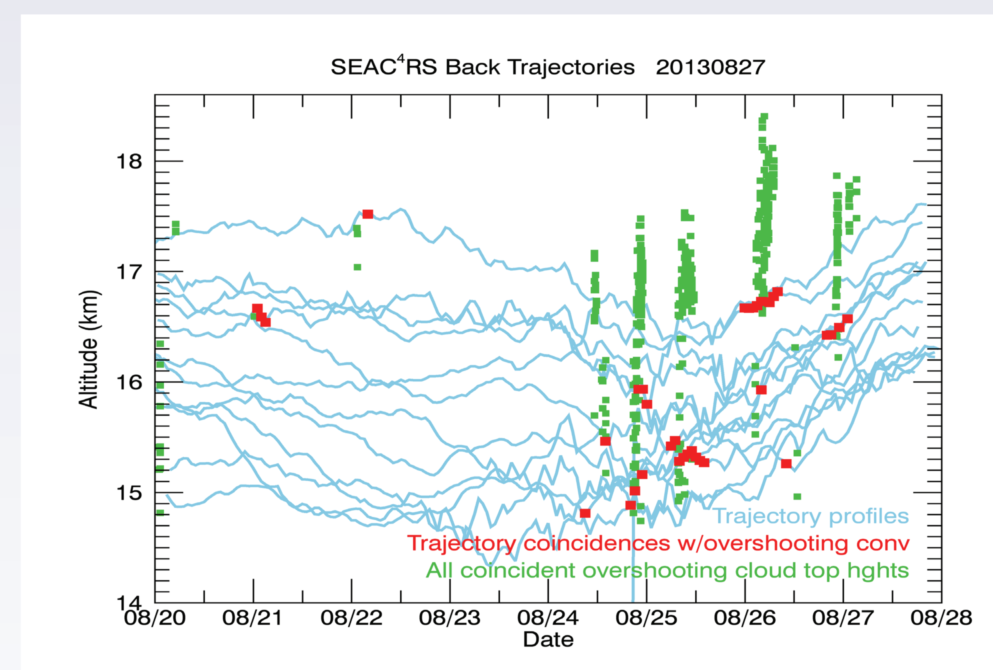

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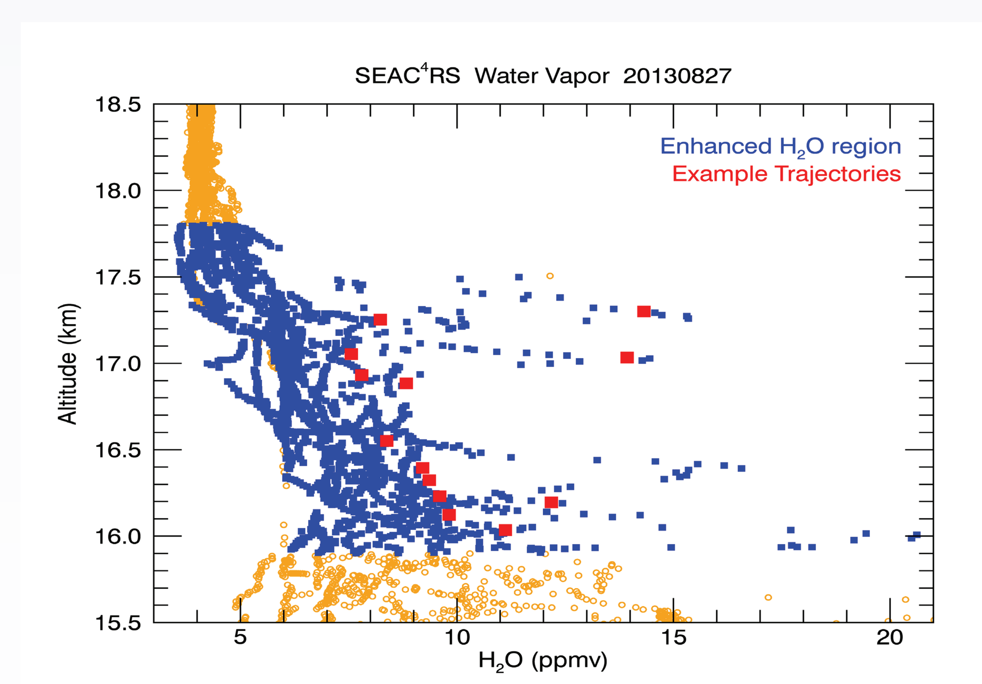

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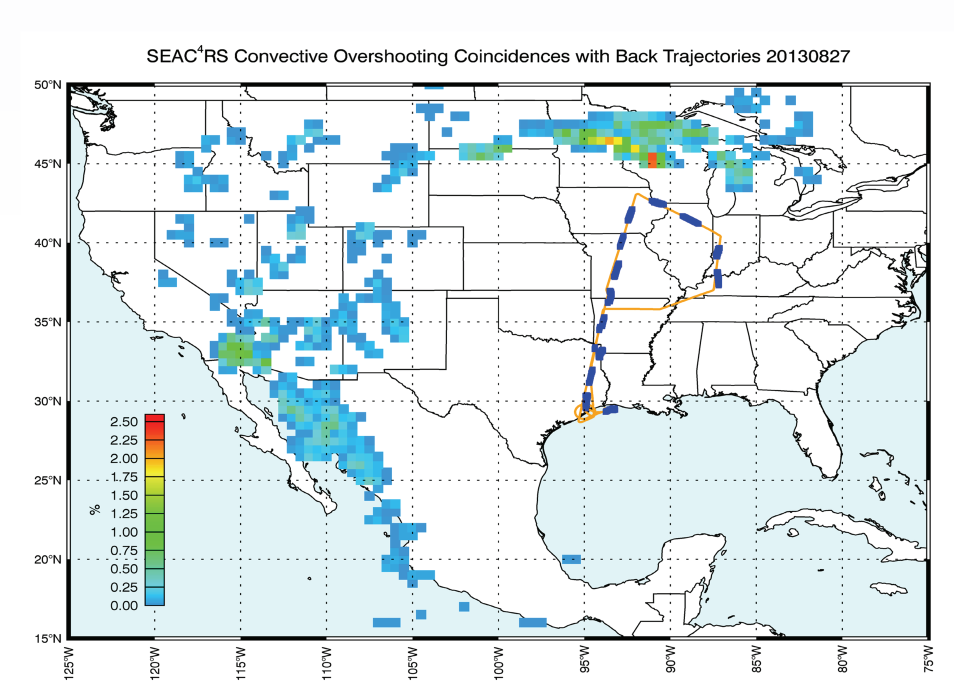

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Acknowledgements

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References

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Summary

JLH provided UT/LS water vapor measurements from the NASA ER-2 during SEAC4RS. Aura MLS measurements indicate that the 2013 summer was slightly drier at 100 hPa than the average of 2004-2013 summers. MLS 100-hPa H2O was observed to exceed 8 ppmv only nine times over the CONUS in July-August 2013. JLH frequently observed enhanced H2O in the lowermost stratosphere between 160 and 80 hPa. On NAM ER-2 flights in August, the southern flight legs tend to have more UTLS moisture than the northern flight legs.